



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/790,819

03/03/2004

Munetaka Kakiuchi

249935US0X

1495

22850 7590 06/19/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

NOTIFICATION DATE

DELIVERY MODE

06/19/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/790,819	<b>Applicant(s)</b> KAKIUCHI ET AL.	
	<b>Examiner</b> Callie E. Shosho	<b>Art Unit</b> 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :  
10/2/06 (corrected version of IDS of 7/19/04).

**DETAILED ACTION**

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 3/15/07.

The new grounds of rejection set forth below are necessitated by applicants' amendment and thus, the following action is final.

**Claim Rejections - 35 USC § 102**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 3-4, 6-7, 9-16, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nichols et al. (U.S. H2113).

The rejection is adequately set forth in paragraph 5 of the office action mailed 9/25/06 and is incorporated here by reference.

Although example II, pointed to by the examiner as establishing that the polyurethane of Nichols et al. would inherently possess at most 2 wt.% urea as presently claimed, discloses polyurethane with acid number outside the scope of the present claims, given that a fair reading of Nichols et al. as a whole discloses the use of polyurethane possessing acid value of 5-70 which overlaps the presently claimed acid value, it clear that such process for making polyurethane as found in example II is used for all polyurethane disclosed by Nichols et al. including those possessing acid value as presently claimed.

**Claim Rejections - 35 USC § 103**

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) in view of Suzuki et al. (U.S. 6,245,832).

The rejection is adequately set forth in paragraph 9 of the office action mailed 9/25/06 and is incorporated here by reference.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) in view of EP 1167466.

The rejection is adequately set forth in paragraph 10 of the office action mailed 9/25/06 and is incorporated here by reference.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H2113) in view of EP 1219689.

The rejection is adequately set forth in paragraph 12 of the office action mailed 9/25/06 and is incorporated here by reference.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H 2113) in view of Nagai et al. (U.S. 5,879,439) and Uchiyama et al. (U.S. 5,748,208).

The rejection is adequately set forth in paragraph 14 of the office action mailed 9/25/06 and is incorporated here by reference.

9. Claims 1, 3-4, 6-7, 9-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. (U.S. H2113).

Nichols et al. disclose pigment dispersed aqueous recording liquid comprising 0.5-10% water-dispersible polyurethane, i.e. polyurethane resin emulsion, and 4-8% pigment which has dispersion average particle size of less than 0.1  $\mu\text{m}$  and includes carbon black. The resin emulsion comprises 17-60% polyurethane wherein the polyurethane possesses weight average molecular weight of 1,500-100,000 and acid value of 5-70. It is disclosed that mixtures of pigments are utilized. It is calculated that the ratio of polyurethane to pigment is 0.01  $((0.17*0.5)/8) - 1.5 ((0.6*10)/4)$  which clearly overlaps the presently claimed ratio of polyurethane to pigment of 0.6  $(60/100) - 2 (200/100)$ . It is further disclosed that the ink is printed by ink jet printer onto substrate to produce printed material (col.1, lines 46-50 and 57-60, col.3, line 63-col.4, line 5, col.4, lines 16-18 and 24-27, col.6, lines 10-15, col.7, lines 1-3, col.10, lines 8-15 and 58, col.11, lines 41-42 and 45-47, and col.12, lines 29-51).

Given that Nichols et al. disclose recording liquid identical to that presently claimed, it is clear that a solid-printed part having 14.5 mg per square inch of the recording liquid printed on photographic image quality paper would intrinsically provide printed thickness of at least 20 nm, optical density of at least 2, 20<sup>0</sup> gloss value of at least 60, and arithmetic average roughness of at least 0.04 as presently claimed.

Further, attention is drawn to example II wherein polyurethane is prepared in the absence of polyamine chain extender and water and thus, it is clear that the polyurethane of Nichols et al. would intrinsically possess at most 2 wt.% urea as presently claimed. Although the example discloses polyurethane with acid number outside the scope of the present claims, given that a fair reading of Nichols et al. as a whole discloses the use of polyurethane possessing acid value of 5-70, it would have been obvious to one of ordinary skill in the art that such process for making polyurethane found in example II would be used for all polyurethane disclosed by Nichols et al. including those possessing acid value as presently claimed and thus, one of ordinary skill in the art would have arrived at the present invention.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. as applied to claims 1, 3-4, 6-7, 9-10, and 13-15 above, and further in view of Suzuki et al. (U.S. 6,245,832).

The difference between Nichols et al. and the present claimed invention is the requirement in the present claim of specific carbon black.

Suzuki et al., which is drawn to ink jet ink, disclose the use of carbon black possessing DBP value of 50-80 ml/100 g and discloses that if the value is less than 50 ml/100 g, dispersability is deteriorated and if the value is greater than 80 ml/ 100 g, the viscosity of the ink increases and thus the ejection property of the ink tends to turn worse (col.6, lines 10-16).

In light of the motivation for using carbon black with specific DBP disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art

to use such carbon black in the ink of Nichols et al. in order to produce ink with well dispersed carbon black that ejects properly from the printer, and thereby arrive at the claimed invention.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. as applied to claims 1, 3-4, 6-7, 9-10, and 13-15 above, and further in view of EP 1167466.

The difference between Nichols et al. and the present claimed invention is the requirement in the present claim of the use of additional resin.

EP 1167466, which is drawn to ink jet ink, disclose the use of anionic water-soluble polymer having acid value not less than 150 in order to improve the storage stability, waterfastness, and rubbing resistance of the ink (paragraph 41).

In light of the motivation for using additional resin disclosed by EP 1167466 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such resin in the ink of Nichols et al. in order to produce ink with improved the storage stability, waterfastness, and rubbing resistance, and thereby arrive at the claimed invention.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. as applied to claims 1, 3-4, 6-7, 9-10, and 13-15 above, and further in view of EP 1219689.

The difference between Nichols et al. and the present claimed invention is the requirement in the present claims of the use of carbon black and cyan pigment.

EP 1219689, which is drawn to ink jet ink, discloses adding cyan pigment to ink containing carbon black in order to modify yellowing property of the carbon black (paragraphs 3, 5, and 7).



In light of the motivation for using cyan pigment with carbon black disclosed by EP 1219689 as described above, it therefore would have been obvious to one of ordinary skill in the art to use cyan pigment in the ink of Nichols et al. in order to reduce yellowing of the ink, and thereby arrive at the claimed invention.

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols et al. as applied to claims 1, 3-4, 6-7, 9-10, and 13-15 above, and further in view of Nagai et al. (U.S. 5,879,439) and Uchiyama et al. (U.S. 5,748,208).

The difference between Nichols et al. and the present claimed invention is the requirement in the claims of the amount of ink deposited onto substrate.

Nagai et al., which is drawn to ink jet ink, disclose that the deposition amount of ink on paper is  $2-25 \text{ g/m}^2$  or  $1.29 - 16.1 \text{ mg/in}^2$  so that the paper is prevented from curling or waving (col.23, lines 2-12). Although Nagai et al. disclose the use of paper having Stockigt size degree of 3 seconds or more, it is well known, as found in Uchiyama et al. (col.7, lines 51-53), that the Stockigt size degree of recording paper commonly used in ink jet recording is 5 seconds or paper.

In light of the motivation for using deposition amount of ink of  $1.29 - 16.1 \text{ mg/in}^2$  disclosed by Nagai et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use deposition amount of ink, including that presently claimed, in Nichols et al. in order to produce printed material that does not curl or wave, and thereby arrive at the claimed invention.

**Response to Arguments**

14. Applicants' arguments regarding Pearlstine et al. (U.S. 2004/0092622) have been considered but they are moot in view of the discontinuation of the use of this reference against the present claims.

15. Applicants' arguments filed 3/15/07 have been fully considered but, with the exception of arguments relating to Pearlstine et al., they are not persuasive.

Specifically, applicants argue that Nichols et al. is not a relevant reference against the present claims given that Nichols et al. do not disclose polyurethane having a weight fraction of a urea that is at most 2 wt.% of the polyurethane and acid value of 50-200 as now required in the present claims. Applicants argue that Nichols et al. disclose polyurethane with acid value of from about 10 to about 40 and that example II, pointed to by the examiner as establishing that the polyurethane of Nichols et al. would possess at most 2 wt.% urea as presently claimed, discloses polyurethane with acid number outside the scope of the present claims.

However, attention is drawn to col.4, lines 24-26 and col.7, lines 23-25 of Nichols et al. that disclose that the polyurethane possesses acid value of 5-70 which clearly overlaps that presently claimed. While acid value of about 10 to about 40 is preferred, it is noted that "nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims", *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Additionally, while there are no examples that disclose polyurethane possessing acid value as presently claimed, "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that

the reference did not teach others”, *In re Courtright*, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967).

Further, while it is agreed that example II of Nichols et al., pointed to by the examiner as establishing that the polyurethane of Nichols et al. would possess at most 2 wt.% urea as presently claimed, discloses polyurethane with acid number outside the scope of the present claims, on the one hand, given that a fair reading of Nichols et al. as a whole discloses the use of polyurethane possessing acid value of 5-70 which overlaps the presently claimed acid value, it clear that such process for making polyurethane as found in example II is used for all polyurethane disclosed by Nichols et al. including those possessing acid value as presently claimed. On the other hand, given that a fair reading of Nichols et al. as a whole discloses the use of polyurethane possessing acid value of 5-70, it would have been obvious to one of ordinary skill in the art that such process for making polyurethane found in example II would be used for all polyurethane disclosed by Nichols et al. including those possessing acid value as presently claimed and thus, one of ordinary skill in the art would have arrived at the present invention.

In light of the above, it is the examiner’s position that Nichols et al. remains a relevant reference against the present claims.

### **Conclusion**

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
6/8/07